Zainab Iftikhar

PHD CANDIDATE · HUMAN-COMPUTER INTERACTION · MACHINE LEARNING · ACCESSIBILITY

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Education

Brown University *Providence, RI*
PH.D. IN COMPUTER SCIENCE *2021 – 2027*
  Advisor: Jeff Huang

Brown University *Providence, RI*
SC.M IN COMPUTER SCIENCE *2021 – 2023*
  Coursework: Computational Linguistics, HCI, Deep Learning, Data Science, UI/UX

National University of Computer & Emerging Sciences (NUCES) *Lahore, PK*
B.SC. COMPUTER SCIENCE *2014 – 2018*
  Cum Laude | Top 5 Students | Dean's List 2014 - '18 | Silver Medalist (x3)
  Coursework: HCI, Artificial Intelligence, Software Engineering, Design & Analysis of Algorithms

Publications

* denotes equal contribution

CONFERENCES

(in review) **Zainab Iftikhar**, Sean Ransom, Amy Xiao, Jeff Huang. 2024. Evaluating Peer and Large Language Model's (LLM) Responses in Online Cognitive Behavioral Therapy Sessions. CSCW '24.

(to appear) Sara Syed*, **Zainab Iftikhar***, Amy Xiao, Jef Huang. 2024. Machine and Human Interpretation of Empathy in Online Peer Support: A Cognitive Behavioral Approach. CHI '24.

Zainab Iftikhar, Yumeng Ma, Jeff Huang. 2023. "Together but not together": Evaluating Typing Indicators for Interaction-Rich Communication. CHI '23. [pdf] [code]

Zainab Iftikhar, Qutaiba Rohan ul Haq, Osama Younus, Taha Sardar, Hammad Arif, Mobin Javed, Suleman Shahid. 2021. Designing Parental Monitoring and Control Technology: A Systematic Review. INTERACT '21. [pdf]

JOURNALS

(in review) **Zainab Iftikhar**, Rabiah Arshad, Suleman Shahid. 2023. Enhancing User Engagement in mHealth for Depression Management & Behavior Change: A Systematic Review of Persuasive Design Principles. BIT '24.

Mahmoud Elkhodr, Omar Mubin, **Zainab Iftikhar**, Maleeha Masood et al. 2021. Technology, Privacy, & User Opinions of COVID-19 Mobile Apps for Contact Tracing: Systematic Search & Content Analysis. JMIR '21. [pdf]

WORKSHOPS, EXTENDED ABSTRACTS & PROGRAM POSTERS

Suleman Shahid, **Zainab Iftikhar**, Rabiah Arshad, Omar Mubin, Abdullah Al Mahmud. 2021. Child-Computer Interaction in the Global South: IDC '21. [pdf]

Yitian Cao, **Zainab Iftikhar**, Amy Greenwald. 2022. Biases in "fair" hiring algorithms: A Fairness Analysis. ExploreCSR '22: Socially Responsible Artificial Intelligence partnered with Google Research. [pdf]

Manar Abdelatty, **Zainab Iftikhar**, Titas Grusnius, Tyler Jacobson (2022) Attention-Based Object Detection: A Scalable Re-implementation. Deep Learning Day '22. [pdf]

Research Experience

Brown University   *Providence, RI*
Advisor: Jeff Huang   *2021 - Present*
- Developing systems to improve human-AI interaction in healthcare, wellness and mental health contexts
- Working on text-based systems across social media and messaging channels to analyze, visualize, and understand communication patterns for improved collaboration and task performance
- Integrating machine learning algorithms with social data analysis to uncover insights into human interconnectedness, self-reflection and collaboration for translating complex data into actionable reflection

Lahore University of Management Sciences   *Lahore, PK*
Co-Advisors: Suleman Shahid, Mobin Javed   *2019-2021*
- Designed, developed, and evaluated AI-based, ethically conscious social support healthcare interactive systems for individuals with disabilities in Pakistan.
- Successfully transitioned seven research applications, including three web-based, two mobile and two AR/VR systems, into production by conducting mixed-methods research.

National University of Computer & Emerging Sciences   *Lahore, PK*
Co-Advisors: Mehreen Saeed, Mubasher Baig   *2014-2018*
- Honor's Thesis: Assessing Reliability, Trust and Transparency in Multi-Modal Hiring Algorithms [pdf]
- Implemented multimodal ML system to assess candidate personality from visual, audio and interview speech using NumPy, TensorFlow, PyTorch and NLTK. Employed debiasing techniques to ensure fair and equitable decision-making

Research Projects

OPEN SOURCE

Live Typing. 2022. Real-time typing indicators to increase social presence for improved collaboration & task performance.
App: https://www.npmjs.com/package/live-typing
Code: https://github.com/brownhci/live-typing

SYSTEMS

Sochiatrist. 2021 – Present. A social data extractor to predict signals of self-reflection from social media & messaging data.
App: https://sochiatrist.cs.brown.edu/

Cheeserburger Therapy. 2021 – Present. An accessible chat-based platform that provides peer support through Cognitive Behavioral Therapy (CBT) to scale mental health support.
App: https://cheeseburgertherapy.org

Virtual Showdown. 2021. An accessible virtual reality game for Pakistani visually impaired youth customized by examining the contextual changes in existing VR systems and the difference in body movement strategies adopted by the participants.

Corona Assisted. 2021. Pakistan's first web-based chat and awareness platform in English and Urdu that integrates eXplainable Artificial Intelligence (XAI) for fact-checking information on COVID-19.
App: https://corona.assisted.pk/en

HumQadam. 2021. Pakistan's first question-answer awareness system (NLP) in English and Urdu to empower women regarding legal actions to take for gender-based violence and a referral directory for contact.
App: https://play.google.com/store/apps/details?id=com.haris_muneer.humqadam

Teaching Experience

2022 – 2023	**NSF REU: AI for Computational Creativity**, Study Group Leader, Brown University
Spring '21	**Topics in Human-Computer Interaction**, Teaching Assistant, LUMS
Spring '21	**Computer Networks**, Teaching Fellow Position, NUCES
2019 – 2020	**Design & Analysis of Algorithms**, Teaching Assistant, NUCES
2019 – 2020	**Artificial Intelligence**, Teaching Assistant, NUCES
Spring '18	**Human Computer Interaction**, Teaching Assistant, NUCES

Industry Experience

Lahore University of Management Sciences *Lahore, PK*
PRODUCT LEAD *2019 - 2021*
- Leading the research team in HCI Lab for Inclusion, Well-being and Learning Lab, I designed, developed and launched web, mobile and VR/AR health systems for neuro-divergent children, elderly suffering from dementia, visually impaired and low-literate populations in Pakistan

Pantera Energy *Lahore, PK*
SOFTWARE ENGINEER *2017 - 2019*
- Developed Pantera energy Saver, using Flask, MongoDB and Angular, to optimize solar systems' performance through data analysis and algorithmic improvements, resulting in a 10% increase in energy efficiency and 15% reduction in costs
- Build ML-based predictive maintenance algorithms, reducing system downtime by 20% and minimizing on-site maintenance visits by 30%

Invited Talks and Press

INVITED TALKS

Jan 2024. Re-imagining Mental Health Access: The Role of Human, AI and Design. Carnegie Mellon University

PRESS

July 2023. "What Are You Typing? Enhancing Digital Communication Through Rich Typing Indicators", Brown CS

Apr 2021. "Corona Assisted: A Website with a Mission", Lahore University of Management Sciences

Feb 2021. "Mobile app launched to support survivors of violence against women", The News

Feb 2021. "Mobile app to help women suffering from violence hailed a 'big step forward' ", Gulf News

Feb 2021. "Launch of Humqadam App by Shirkat Gah — A Resource and Safety App For Women Across Pakistan", Medium

Apr 2020. "Three apps unveiled to support autistic children", The Express Tribune

PRESENTATIONS

May 2023. "Together but not together": Evaluating Typing Indicators for Interaction-Rich Communication, ACM CHI. [talk]

Mentorship

2023 – 2024 **Amy Xiao**, Brown HCI Lab
Fall '22 **Jieyun Li**, Brown HCI Lab
2021 – 2022 **Sara Syed, now at Goldman Sachs**, Brown HCI Lab
2022 – 2023 **Yumeng Ma**, Distributed Research Experiences for Undergraduates (DREU)
Spring '22 **Yitian Cao**, ExploreCSR, now at Goldman Sachs

2020 – 2021 **Abdul Moeed Asad**, LUMS HCI Lab, now at Purdue
Ali Asghar Aamir, LUMS HCI Lab, now at Purdue
Mehreen Masood, LUMS HCI Lab, now a Ph.D. Student at UC Irvine

Awards, Fellowships, & Grants

2023	**Conference Travel Fund, International Travel Fund (both for CHI'23)**, Brown University
2022	**Grace Hopper Celebration of Women Scholarship**, Brown University
2021	**Conference Travel Fund (INTERACT'21)**, National Centre for Cyber Security
2020	**Leadership Award, Promoted to Product Lead**, Lahore University of Management Sciences
2019	**Performance Excellence Award**, Pantera Energy
2018	**Outstanding Undergraduate Researcher Honorable Mention**, NUCES
	Academic Excellence Award (Silver Medalist) x3, NUCES

Service, Outreach and Review

2023 – 2024	**Leader**, Graduate Outdoor Adventure Program, Brown University
2023 – 2024	**PhD Student Liaison**, Muslim Student Association, Brown University
2022 – 2024	**PhD Student Representative**, Diversity and Inclusion Initiative, Brown University
2023	**Session Chair**, ACM CHI
2021 – 2024	**Peer Reviewer**, ACM CHI (x4), ACM CSCW (x1)

Skills

Programming: Python, C++, Java, React, JavaScript, Node.js, Angular, MySQL

Practices/Tools: Tensorflow, PyTorch, Pandas, Sklearn, spaCy, NumPy, NLTK, Docker, EC2, Flask, AWS Lambda, Heroku

HCI Research methods: Experimental Design, Qualitative Analysis, Mixed methods, Log Analysis, Interview, Surveys, Contextual Inquiry, Usability Study, Thematic Analysis, Grounded Theory